UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,547	04/15/2004	Yoon Ho Song	123034-05004742	6529

43569 7590 05/16/2006

MAYER, BROWN, ROWE & MAW LLP
1909 K STREET, N.W.
WASHINGTON, DC 20006

EXAMINER	
VO, TUYET THI	

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/824,547	SONG ET AL.	
	Examiner	Art Unit	
	Tuyet Vo	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/2/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: IDS.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5, 9-11, 13, 17, 18, 20, 24, 25 and 27 are rejected under 35 U.S.C. 102(e) as anticipated by Hofmann et al. (US Pub. 2003/0184213) hereinafter Hofmann or, in the alternative, under 35 U.S.C. 103(a) as obvious over the admitted prior art shown in Fig. 2.

Regarding claims 1, 9, 17 and 24, Hofmann discloses a field emission display (Fig. 5), comprising:

an anode plate having a transparent electrode (ITO) on a substrate (112) and a phosphor (PHOSPHORS) on a portion of the transparent electrode, in each pixel (Fig. 4B);

a gate plate (A, marked by examiner) having gate holes (B, marked by examiner) and a gate electrode (15) around the top of the gate holes (B), said gate holes (B) having an inclined/slanted (C, marked by examiner) inner wall; and

spacers (24) for supporting the gate plate between the cathode plate and the anode plate, wherein the field emitter of the cathode plate is constructed to be opposite to the phosphor of the anode plate through the gate holes, and is formed by vacuum packaging ([0027]), wherein the cathode plate inherently having row/column signal lines for which row/column addressing is possible on a substrate, and pixels each defined by the row signal line and the column signal line.

A lack of belt shape row/column signal lines and film shape field emitter in Hofmann are clearly fulfilled by the admitted prior art shown in Figure 2, in that, a cathode plate having

row/column signal lines (21S, 21D) of a belt shape for which row/column addressing is possible on a substrate, and pixels each defined by the row signal line and the column signal line, wherein each pixel has a film-shape field emitter (22) and a control device for controlling the field emitter, having at least two terminals connected to the row/column signal lines and one terminal connected to the film-shape field emitter.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the belt shape control signal lines and film shape field emitter into the Hofmann field emission display in order to enhance the signal lines and the emitter in rely manner while compacting the field emission display as desire. Such implementation is considered as a routine skill in the art.

Regarding claims 2, 3, 10, 11 and 18, 25, Hofmann in view of the admitted prior art further discloses substantially the claim invention and Hofmann further discloses the anode plate, the cathode plate and the gate plate are formed of different transparent insulating substrates (112, INSULATOR, SILICON, fig. 4B).

Regarding to claims 5, 13, 20 and 27, Hofmann in view of the admitted prior art further discloses substantially the claim invention and the admitted prior art further discloses data signals (21, 23) applied to the field emitter (Fig. 2) being inherently adjusted by the control device for optimum image.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4, 6-8, 12, 14-16, 19, 21-23, 26 and 28- 30 are rejected under 35 U.S.C. 103(a) as anticipated by Hofmann in view of the admitted prior art as applied toward claims 1 and 17, and further in view of Konishi et al. (US Pat. 6,580,223), hereinafter Konishi.

Regarding claims 4, 12, 19 and 26, Hofman in view of the admitted prior art discloses substantially the claim invention as noted above except for a black matrix at a given region between the phosphors of the anode.

Konishi discloses a field emission display (Fig. 82) comprising a black matrix (23) at a given region between the phosphors (22) of the anode (col. 1, lines 57-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the black matrix as taught by Konishi into the combination of Hofman and the admitted prior art field emission display in order to preventing optical crosstalk formed on the remaining portion of the anode.

Regarding claims 6, 7, 14, 15, 21, 22, 28 and 29, the combination of Hofmann, the admitted prior art and Konishi discloses substantially the claim invention as Konishi further discloses a field emission emitter is composed of a diamond carbon (col. 11, lines 23-67), wherein a thin film transistor for controlling the field emitter (Figs. 1-10).

Regarding claims 8, 16, 23 and 30, the combination of Hofmann, the admitted prior art and Konishi discloses substantially the claim invention as Konishi further discloses a DC voltage (Figs. 29-32) is applied to the gate electrode to induce an electron emission from the film-shaped field emitter in the cathode plate; the emitted electrons are accelerated with high energy by applying a DC voltage to the transparent electrode of the anode plate; and scan and data signals are addressed to the control device of the field emitter in each pixel of the cathode plate, whereby the control device of the field emitter controls the electron emission of the field emitter to represent images (Figs. 3, 23 and 24).

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyet Vo whose telephone number is 571 272 1830. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571 272 1740. The fax phone numbers for the

organization where this application or proceeding is assigned are 571 273 8300 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571 272 2800.
Information regarding the status of an application or status information for publicing/unpublicing applications may be obtained from the Patent Application Information Retrieval (PAIR) system, see http://pair-direct.uspto.gov. Should you have questions on access to the PAIR system, contact the Electronic Business Center (EBC) at toll free 866-217-9197.

Tuyet Vo
Primary Examiner
May 14, 2006

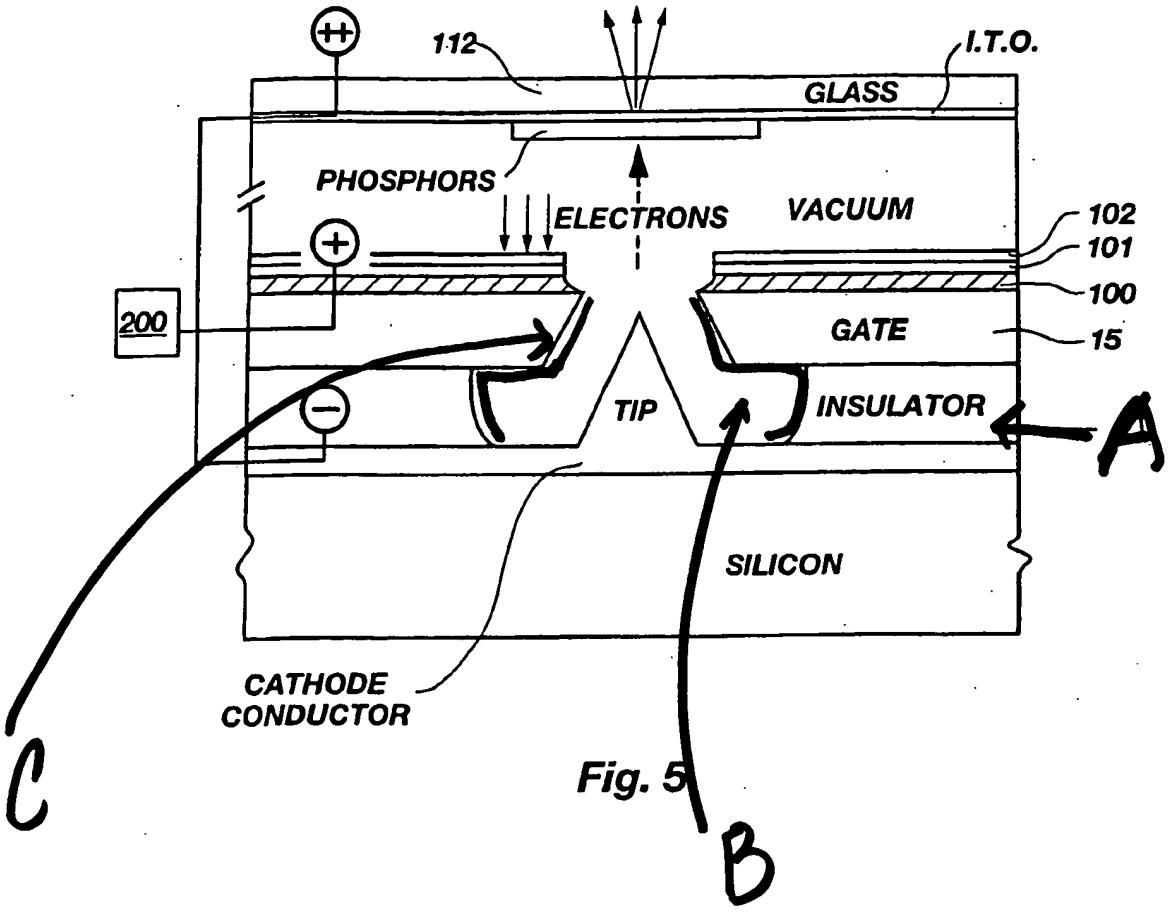
112
I.T.O.
GLASS
PHOSPHORS
ELECTRONS
VACUUM
102
101
100
200
GATE
15
TIP
INSULATOR
A
SILICON
CATHODE
CONDUCTOR
C
B

Fig. 5